

Clearing the Agile Mist

Driving to Clear Communication as Agile Goes Program Wide

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Creating Solutions to Meet Customers' Needs

No problem there – we know how to do it well

So Why Do We Need to Change?



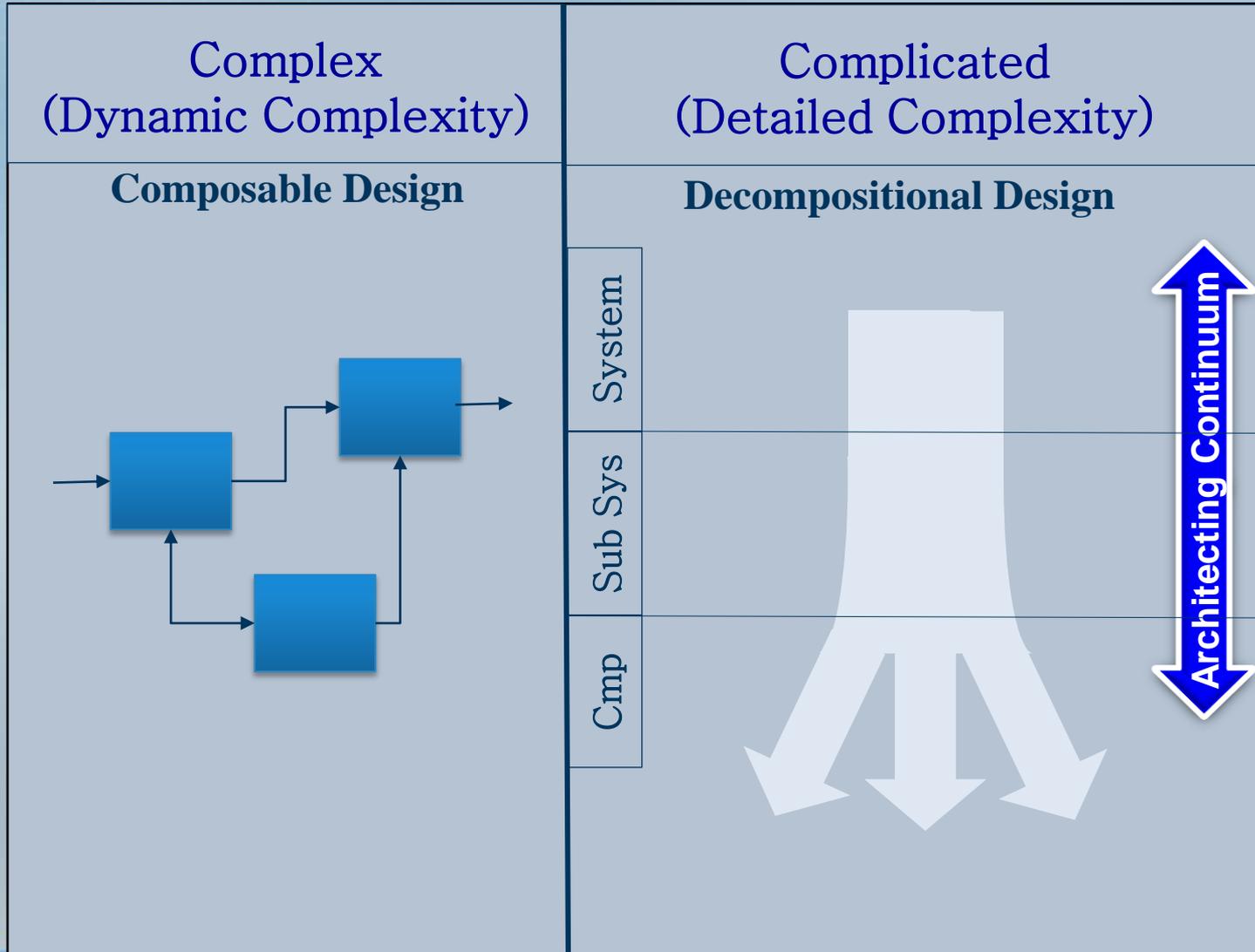
- Rapid change – increasing Ops Tempo
- Increased focus on operational suitability
- Shrinking resources – increased financial pressure (Affordability)
- Increasing complexity
- Increasing unpredictability
- Increasing uncertainty
- Rate of Technology Change (Moore's Law)

And,,,,

- We want to realize the benefits of Agile Practices across the entire program

Adapting Engineering Across the Program

Increasing Complexity





- **But how is value realized?– the ends of the spectrum**
 - Disciplined, rigorous engineering with predictable outcomes
 - Have to wait for the value
 - Fly by the seat of the pants design-and-build
 - Value is delivered in quickly but with unpredictable results
- **How do we get the best of both worlds – Agile Systems Development**
 - Flexible application of dependable practices focused on value delivered in short increments

Agile = Bringing Value As Quick As Possible



Not to get derailed but ...

- **‘Big A’ Agile – Repeatable application of agile principles and practices**
- **‘Little a’ agile – being nimble**
- **Why the distinction?**
 - People don’t know what you mean when you say “Agile”
 - People don’t know what you hear when they say “Agile”



- **Everyone is using the term but with a different meaning**

- And often a different intent

- **Recognize any of these?**

- “They said they were doing agile but it looks the same as always.”

- “They said they were doing agile but when I dug into it I did not recognize it as what I know of agile.”

- “That’s not what I thought agile was?”

- **Communication**

- People who don’t really understand agile but want the benefits it promises
 - Misunderstandings lead to failure of expectations

- **Terms pretty clear in SWD but Agile is now being applied in HW, at the system level, and across programs**



- **People throw “agile” around like they really know what they’re talking about when they don’t**
- **People use the Buzz word because it gets attention**
- **People blowing smoke**
- **There is considerable motivation for hi-jacking the term**
 - People making money
 - People with career ambitions
 - People who say/claim agile to get sales
 - People who speak agile to get buy-in for something else



AGILE SYSTEMS Engineering

VS.

Agile SYSTEMS ENGINEERING

**Where we
are**



At a high level it's simple, really

- **Management practices - how we manage the work at hand (e.g. project management - scrum)**
- **Technical practices – how engineering products get created (e.g. paired programming, rapid prototyping)**

But if you don't clarify what is meant when someone says Agile Two conversations ensue.

**The one you are having
and
the one the person you are talking to is having**

Agile Management Practices, Approaches, and Frameworks



- **Short, Time-Boxed Iterations with Frequent Deliveries**
- **Continuous Planning**
- **Small, Self-Directed Teams**
- **Early and Frequent Stakeholder Involvement**
- **Daily Standup Meetings**
- **Frequent Feedback/Early Learning (e.g. retrospectives)**
- **Backlog Driven Management**

- **Examples of Popular Approaches**
 - Scrum
 - Scaled Agile Framework (SAFe) (Leffingwell)
 - Agile Project Management (APM) Framework (Highsmith)
 - Disciplined Agile Delivery (DAD) (Ambler)



- **‘Evolutionary’ / Incremental**
 - Early SE bounding – more SE with each ‘time box’
 - Often relies on fixed schedule and cost with flexible technical scope
 - Emergent design, emergent architecture
 - Balanced prescriptive and emergent

- **‘Expedited’ / Lean / Right-Sized**
 - SE fit to the program characterization & urgencies
 - Prescriptive architecture
 - Incremental Commit Model (ICSM) – Value focused scaling

- **Agile SWD with SE (Ad-Hoc SE)**
 - Organizations & projects driven by Agile SWE but recognizing need for SE



- **Systems Engineering examples (young area)**
 - From value focused Scaling

What do Agile Programs Look Like?



- **Traditional SE Managed as Agile**
- **Traditional SE with Agile Development**
- **Traditionally managed Evolutionary Agile SE technical approaches (Plan driven)**
 - Scaled SE with Traditional Development
 - Scaled SE as precursor (leading) to Agile Development
- **“Agilely” Managed Evolutionary Agile technical approaches**
 - Ad-hoc SE driven by Agile Development (essentially no prescriptive design)
 - Scaled SE as precursor (leading) to Agile Development (the whole enchilada)
- **Expedited SE – Traditional or Agile Management**
- **Combinations of approaches on complex programs**
- **Examples of Scaled SE Technical Practices (to come)**
 - Seminar series being developed

} Balancing
Prescriptive
and Emergent

Agile Taken to The Enterprise Level



- **Could be viewed from the team/development program scaling to big or complex levels**
- **At Scale – a hybrid approach of technical practices are applied together**
- **But what about technical and operational**
 - Dev Ops

Scaled Solution Description (Architecture)



Clearing Up the Communication



- **Understanding the difference is one thing**
- **When someone says “agile” it can mean many things**
- **Knowing that is half the battle**
- **Figuring out what they mean by “agile” is the other half**
- **The key is to know the right questions to ask**
 - So here are some



- **Is your effort organized for realizing value early and often?**
- **Big A vs. Little a**
 - Is your effort a development program/project?
 - Is your program much more responsive to external change than normal?
 - Are your 'agile' methods documented, repeatable?
- **Do you deliver (put into use) pieces of the system in short intervals?**
- **Do you create & review/deliver engineering products in increments?**
- **Are you managing the work with Scrum?**
- **Which formal agile SWD/SE methods are you using?**
- **Are you talking about the agility of the engineering or the agility of the system that comes from the engineering?**



- **The term “Agile” can mean so many things**
 - Management approach
 - Systems engineering approach
 - Technical practices
 - Development approach

- **This mix of possible applications of Agile practices results in many variants of “agile” programs**

**This is one case where being informed is half the battle
The other half is being able to know how to avoid confusion –
to ask the right questions**

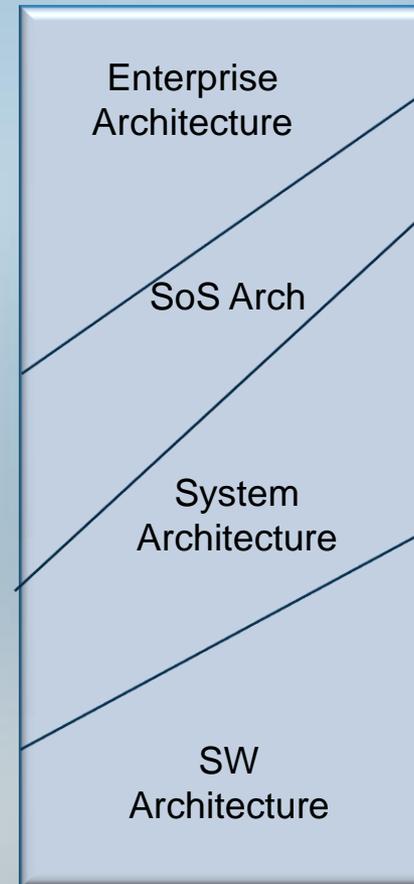
Backup Charts





▪ Example Criteria

- EA is concerned with the ecosystem – SA fits a solution into the ecosystem
- SOS A focuses on collaboration of systems – SA focuses on creating a system/solution
- SA determines the right mix of technologies for a solution – SWA creates the behaviors allocated to SW/services
- SA handles analysis of alternatives
- SA allocates aspects of the solution to TTPs, people, technologies (HW/SW)
- SWA: performance, functionality ...

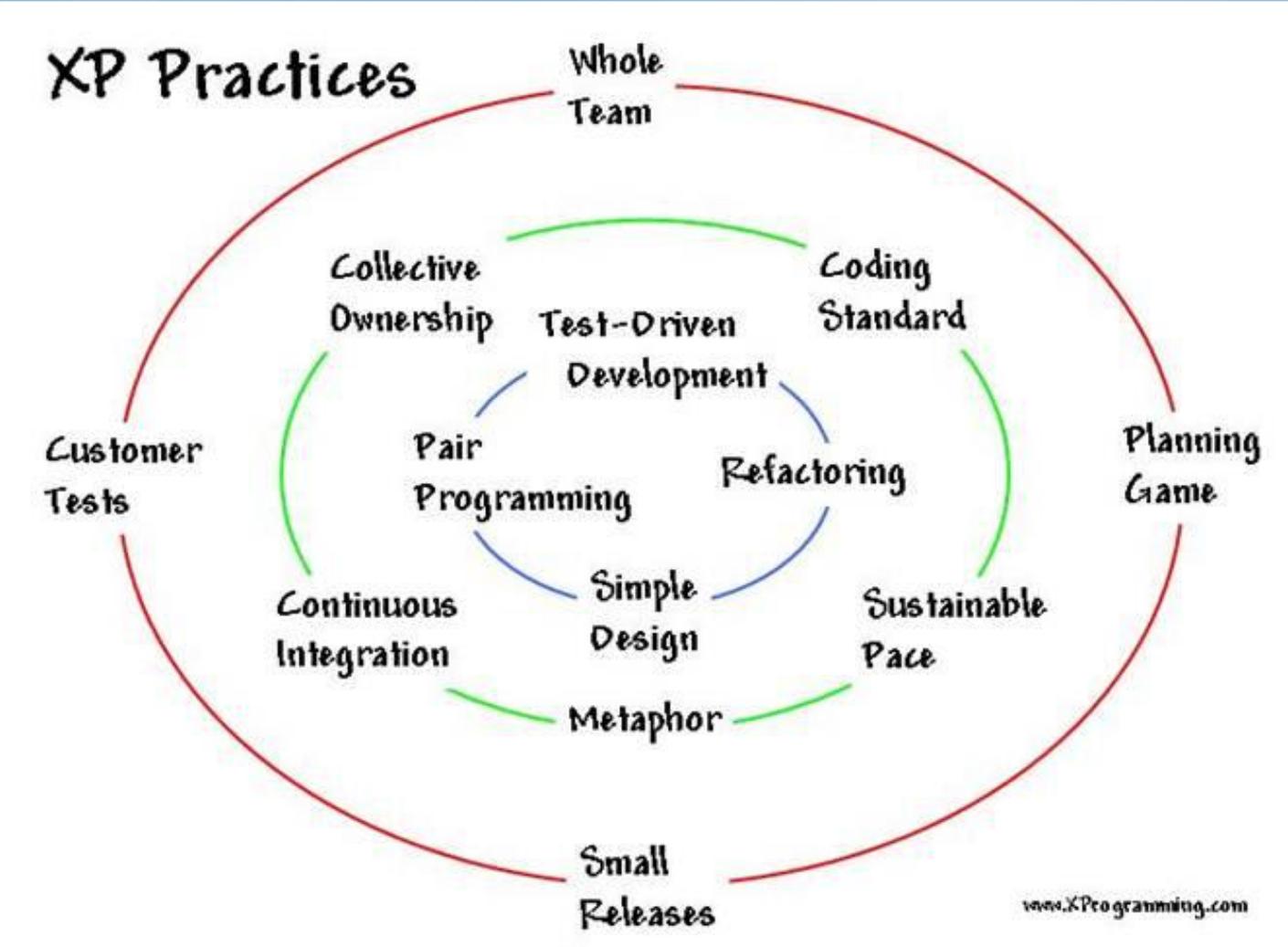


Application to:

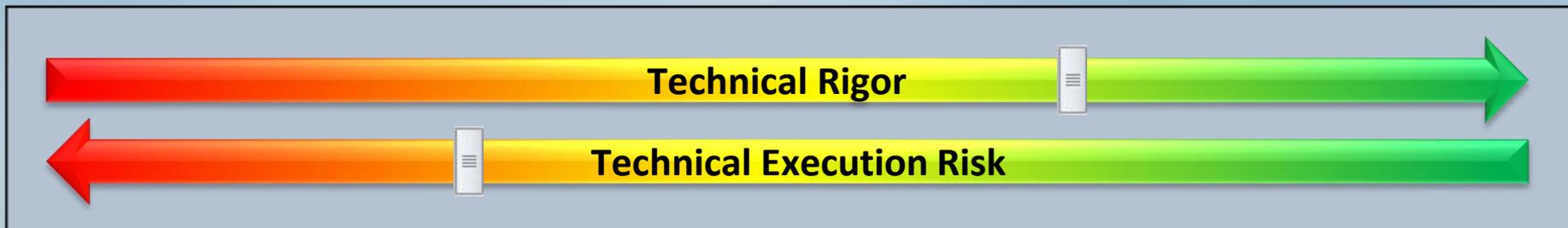
- Agile Sys Dev
- Agile SE
- Agile SW Dev

Other work is fleshing out the Continuum

Agile Technical Practices SW Examples



Problem Understanding (Mission Analysis)



Solution Descriptors (Requirements)

